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conclusions on insufficient data are pointed out only for the purpose of calling attention to the insufficiency of the data.

Particular attention may be called to the portions relating to race, nativity, and parentage, both as an illustration of the care with which the work is done, as well as of the importance of some of the conclusions.

A. G. WARNER.

A CORRECTION.

In his review* of the Report of the Special Committee on Out-Door Alms of the Town of Hartford, 1891, Dr. Warner calls attention to the fact that the per capita cost of poor relief for European countries does not follow from the figures presented by the committee, but is caused by an arithmetical error. Dr. Warner informs us that in a subsequent issue of the Report this has been corrected. The error was two-fold, the figures for cost of poor relief in England and Wales should have been \$42,204,105 instead of \$101,012,325. Making this correction and dividing by the total population of Great Britain, the figure \$1.43 per capita is obtained instead of \$1.07. This corrects the statistical table of the committee, and eliminates its manifest inaccuracies. It does not change the contention of the committee that Hartford spends more money than the British Isles, as the per capita expenditure in Hartford is \$1.96. This correction is made in justice to the Committee. It does not weaken any material portion of Dr. Warner's criticism.

NET PROFITS OF MANUFACTURING INDUSTRIES IN THE STATE
OF MASSACHUSETTS.

I have read with much interest the 21st report of the Bureau of Statistics of Labor of Massachusetts, and also the review of the same in the article by Frederic B. Hawley, in the March *Publications of the American Statistical Association*. It has seemed to me that the net profits of manufacturing for a given time, at least to the shareholders in manufacturing companies, could be arrived at with mathematical accuracy. If, on the 1st of January of any given year, a man bought

* Page 437 of Volume II of these *Publications*.

a given manufacturing stock at the market price, and held it for ten years; received all the dividends, stock or otherwise; paid all the assessments, and at the end of the ten years sold it at the market price, the calculation of the percentage made on the capital that he invested would not be a difficult one. By adding together all the corporations whose statistics are attainable for an equal length of time, it would seem to me to give a fair average of the profits made in manufacturing for that length of time. Improvements or depreciations in plant are elements which enter into the selling price of the various stocks, and the selling price of stocks is a better estimate of their value than any mere appraisal of the property upon which the stocks are based.

Mr. Jos. G. Martin, of Boston, has issued annually a statement of stock fluctuations in Boston bank, insurance, railroad, manufacturing, and other stocks and bonds, together with the dividends paid by each. In his manufacturing lists he has also included the Fall River Manufacturing Companies.

From those lists I have taken every Massachusetts company mentioned in 1882 for which figures are given for ten years. The list follows, and comprises 65 companies in various kinds of business, including the cotton and woollen manufacture, bleacheries, belting, and machinery. Of these 65 companies 41 mentioned immediately below have maintained the same capital during the ten years from 1882 to 1892:—

Appleton.	Lancaster.	Slade.
Boston.	Lowell.	Troy Cotton Mill.
Boston Duck.	Lyman.	Thorndike.
Dwight.	Merrimack.	Crescent.
Hamilton Cotton.	Naumkeag.	Granite Mills.
Lawrence.	Pacific.	Laurel Lake.
Lowell Machine.	Tremont & Suffolk.	Merchants.
Massachusetts.	Chace Mills.	Narragansett.
Middlesex.	Fall River M ^{fr} y.	Richard Borden.
Otis.	King Philip.	Shove.
Boott.	Mechanics.	Tecumseh.
Boston Belting.	Metacomet.	Union Cotton.
Chicopee.	Pocasset.	Weetamoe Mills.
Flint Mill.	Robeson.	

Five, named below, have stopped during the ten years: —

Annawa Mills.	Montaup.	Sandwich Glass Co.
Fall River Merino.	Quequechan.	

Seven, named below, have had their capital impaired and replaced during the ten years: —

Atlantic Mills.	Lowell Bleachery.	Davol Mills.
Everett Mills.	Washington Mills.	Sagamore Mills.
	Hamilton Woollen Mills.	

Twelve, named below, have increased their capital during the ten years: —

Arlington Mills.	American Linen Co.	Barnard M'fg Co.
Border City M'fg Co.	Barnaby M'fg Co.	Conanicut Mills.
Crystal Spring Bleach	Fall River Bleachery.	Globe Yarn Mills.
& Dye Co.	Stafford Mills.	Wampanoag Mills.
Osborn Mills.		

In making my calculations I have divided the companies into two groups: First, the 41 that have gone through the ten years with unchanged capitals; and, second, the 24 that have been unfortunate or put in additional capital during the same time.

I have also made a calculation, by combining these two sets of figures, to show what amount of interest on investment a man would have made who had bought the stock of all these companies on the 1st of January, 1882, and sold them on the 1st of January, 1892, meantime paying in all the money that was paid in, and receiving all the dividends that were declared.

The results for the 41 companies with unchanged capital appear in table on next page.

Summarizing, I find the total dividends \$24,420,913 for ten years (which would be an average dividend of \$2,442,091.13 per year) to be 6.58 per cent per annum of the par value of the stocks of the above companies. I also find the above annual dividend to be 4.88 per cent of the average selling price for 1882 and 1892, which is \$49,993,616. I also find that taking the price at which the stocks could be bought January 1, 1882, which was \$55,496,350, and the price at which the stocks could be sold January 1, 1892, which was \$44,490,883, that there is a loss in the selling value during the ten years of \$11,005,467. Deducting this from the total amount of dividends, \$24,420,913, we have left \$13,415,446 as the net income for the ten years from 1882

LIST OF COMPANIES WHOSE CAPITAL HAS NOT CHANGED DURING THE
TEN YEARS FROM 1882 TO 1892.

	Par Value.	Market Value Jan. 1, 1882.	Market Value Jan. 1, 1892.	Ten Years Dividends.
Appleton.....	\$600,000	\$717,000	\$345,000	\$138,000
Boott.....	1,200,000	2,580,000	1,620,000	924,000
Boston.....	800,000	1,060,000	848,000	520,000
Boston Belting.....	700,000	1,225,000	1,422,750	749,000
Boston Duck.....	350,000	525,000	562,500	325,500
Chicopee.....	1,000,000	1,900,000	900,000	600,000
Dwight.....	1,200,000	1,920,000	1,800,000	1,068,000
Flint Mill.....	580,000	406,000	609,000	342,200
Hamilton Cotton.....	1,800,000	2,196,000	1,800,000	648,000
Lancaster.....	1,200,000	2,700,000	1,866,000	1,020,000
Lawrence.....	1,500,000	2,700,000	2,250,000	1,365,000
Lowell.....	2,000,000	2,101,775	1,833,333	803,023
Lowell Machine.....	900,000	2,277,000	1,305,000	810,000
Lyman.....	1,470,000	1,719,300	970,200	558,600
Massachusetts.....	1,800,000	2,520,000	1,890,000	1,026,000
Merrimack.....	2,500,000	4,600,000	2,625,000	1,600,000
Middlesex.....	750,000	1,875,000	975,000	765,000
Naumkeag.....	1,500,000	1,890,000	1,590,000	802,500
Otis.....	800,000	1,040,000	1,480,000	800,000
Pacific.....	2,500,000	4,750,000	4,187,500	2,125,000
Tremont & Suffolk....	1,200,000	2,103,000	1,464,000	738,000
Thorndike.....	450,000	495,000	540,000	342,000
Chace Mills.....	500,000	535,000	500,000	285,000
Crescent Mills.....	500,000	400,000	175,000	167,500
Fall River M'f'ry.....	180,000	315,000	216,000	59,400
Granite Mills.....	400,000	1,310,800	960,000	612,000
King Philip.....	1,000,000	1,200,000	1,150,000	490,000
Laurel Lake.....	400,000	376,000	448,000	216,000
Mechanics.....	750,000	862,500	637,500	397,500
Merchants.....	800,000	1,000,000	960,000	480,000
Metacomet.....	288,000	288,000	201,600	44,640
Narragansett.....	400,000	400,000	388,000	230,000
Pocasset.....	800,000	480,000	1,088,000	264,000
Richard Borden.....	800,000	680,000	780,000	368,000
Robeson.....	260,000	234,000	221,000	105,300
Shove.....	550,000	577,500	632,500	294,250
Slade.....	550,000	495,000	330,000	178,750
Tecumseh.....	500,000	660,000	512,500	322,500
Troy Cotton Mill.....	300,000	540,000	585,000	300,000
Union Cotton.....	750,000	1,374,375	1,575,000	1,357,500
Weetamoe.....	550,000	467,500	247,500	178,750
	\$37,078,000	\$55,496,350	\$44,490,883	\$24,420,913

to 1892, which would figure 2.68 per cent as the net income per year. In making these calculations of the selling values I have taken, on the stocks outside of Fall River, the figures for each 1st of January, as shown on Martin's report, while on the Fall River stocks the report for several years shows simply the highest and lowest price of each stock for the year. In valuing these Fall River stocks I have taken for 1882 the lowest prices for the year, and for the selling value in 1892 I have taken the market price January 1st, which allows the leeway in favor of a larger per cent on the total results.

We will next consider the figures of the 24 companies above named whose capital was changed, or whose enterprises were stopped during the ten years:—

Their total par value Jan. 1, 1882, was . . .	\$11,800,000
Their total par value Jan. 1, 1892, was . . .	14,875,000
Or an average par value for the time of . .	13,337,500
The amount of dividends paid on these stocks	
for the ten years was	6,719,250
The amount paid in was	6,135,000
Leaving an excess of dividends over capital	
paid in of	584,250

for the ten years, or \$58,425 per annum, or less than half of 1 per cent on the capital stock, and still less than that on the average selling price.

Ascertaining the loss or difference between the selling price of these companies Jan. 1, 1882, \$14,828,375, and the selling price Jan. 1, 1892, \$14,111,000, we find it to be \$717,375. Deduct from that the margin of dividends above payments, \$584,250, and it will appear that these 24 companies lost \$133,125, besides interest on their capital, for ten years.

Now, combining the two sets of figures, we find:—

That the 65 companies had an average capital	
for the ten years of	\$50,415,500
That the selling price of stocks Jan. 1, 1882, was	70,324,725
That the selling price Jan. 1, 1892, was . . .	58,601,883
That the total dividends paid amounted to . .	31,140,163
That the amount of cash paid in was	6,135,000

Deducting the cash paid in from the dividends leaves \$25,005,163 net cash received by stockholders, or an average of \$2,500 (\$16 per annum. This is equal to 4.86 per cent on the capital stock. The

average selling price ascertained as before was \$64,463,304. On this sum the average dividend was 3.87 per cent. The loss in value of all the stocks for the ten years was \$11,722,842. Deducting this from the dividend leaves \$13,282,321, or 2.06 per cent on the average value of the capital invested.

The change in value of the manufacturing stocks may, of course, be said to depend in part upon the years selected. If the selection of one year was during a particularly prosperous time, and the selection of the other year was during a panic, differences would appear which would not be normal. So far as general business is concerned, however, the year 1892 is reckoned as good as the year 1882, and the comparison of those two years would, in that view, seem to be a fair one. Such of these stocks as appear in Martin's Report for 1881 average even higher than they did in 1882, and in 1880 somewhat lower, but not nearly as low as in later years. On the other hand, there was a continuous and large decrease of value in these stocks, amounting to substantially 20 per cent, between 1882 and 1886, and a moderate increase amounting to about 5 per cent on the remaining value since that time.

It is evident from these figures of selling price at different periods that these corporations, as a whole, have been paying out in dividends more money than they have earned during the past ten years, proper depreciation being taken into account.

As the average dividend paid, saying nothing about loss of value, was 3.87 per cent, it looks as though either these great corporations have been particularly unfortunate during the last ten years, or that the figures of the Commissioner are unduly high, and the deductions of Mr. Hawley still more so.

If it be claimed that private concerns make more than corporations, it is, in the first place, a statement difficult of proof; and, in the second place, it would seem to be contradicted by the well-known fact that corporate enterprises are rapidly taking the places of private ones in all large lines of business. I do not care to introduce personal experience in this connection; but that experience in several lines of business—in managing concerns that have always paid their debts—agrees with the above statement,—that manufacturing companies in competitive lines of business cannot expect to pay over 6 per cent on capital, and the usual salaries for supervision. Those having some specialty may do better; those laboring at a disadvantage, either in

location or management or anything else, are pretty sure to do worse. Two matters of argument of Mr. Hawley I will briefly refer to, as they do not seem to me to be sound. The first is, substantially, that since manufacturers pay a given rate for interest, they must make more than that rate. This is not necessarily so; in fact, the contrary is very often true. I am a director in a concern that has declared 5 per cent annual dividends irregularly, and has paid 6 per cent per annum or more for money most of the time. The less prosperous the business the more a party will have to pay for interest, as a rule. Another argument of his in regard to a small business, in connection with a person having a capital of \$10,700, seems to me wrongly based. He supposes that that amount of investment and the owner's services will produce \$2000 per annum, which I presume would be true, on an average. Instead, however, of dividing that \$2000, as he does, into \$600 wages, \$535 interest, and the balance profit, I should divide it into \$535 interest and profit, and the balance wages. Any man who is capable of carrying on business profitably with an investment of \$10,000 is also probably capable of commanding a salary \$1500 a year if he works for another.

I have no doubt that the net income of all manufacturing concerns is enormously over-estimated by the general public, and that many agrarian and socialistic ideas have as a basis the supposed enormous profits which are made in business. I know of no way so good of arriving at this profit as the course pursued in this paper if continued for a sufficiently long term of years. The general and incidental expenses of business which it is difficult to itemize in advance, but which must be paid just the same, either from principal or profit, form an item of much greater magnitude than most statisticians suppose.

Depreciation is another item that is seldom figured high enough, especially in these days of invention, when the production of a new machine may make the equipment of a factory practically valueless. In this paper I am not attempting to compute the average difference between the wages of supervision and the wages of an operative or mechanic, but the income of any individual from an investment in manufacturing or mechanical enterprises, entirely independent of payment for services.

W. F. DRAPER.

HOPEDALE, MASS.